

AMENDMENTS

In the Claims

The following is a marked-up version of the claims with the language that is underlined ("__") being added and the language that contains strikethrough ("—") being deleted:

1. (Currently Amended) An atomizer system comprising:
 - a) a melt material to be atomized;
 - b.) a containment portion for securing the melt material;
 - c.) a unit which accelerates ~~the environment~~ of the melt material such that ~~the gravitational forces experienced by the melt material~~ experiences an acceleration force higher than are elevated relative to Earth's standard gravitational force; and
 - d.) atomizing fluid that flows across an exposed surface of the melt material;
wherein the containment portion and the unit which accelerates the melt material are operative to prevent the melt material from being ejected from the containment portion due to the acceleration force; and
wherein, while the melt material is experiencing the acceleration force, liquid droplets of the melt material become entrained in the atomizing fluid flowing across the exposed surface of the material such that at least some of the liquid droplets facilitating the establishment of liquid droplets that aerosolize and are ejected from the containment portion create fine particulates.

2. (Currently Amended) The atomizer system of claim 1 further ~~comprises~~ comprising means ~~to introduce~~ for introducing relative motion between the containment portion and the melt material.

3. (Currently Amended) The atomizer system of claim [[2]] 1 wherein ~~elements of the atomizer system~~ melt material is rotated about ~~on~~ more than one axis.

4. (Currently Amended) The atomizer system of claim [[3]] 1 wherein the ~~containment portion spins as a liquid~~ melt material is introduced into ~~it~~ the containment portion as a liquid as the containment portion is being moved by the unit which accelerates the melt material.

5. (Canceled)

6. (Currently Amended) The atomizer system of claim 1 wherein the unit accelerating the ~~environment~~ of the melt material is a centrifuge.

7. (Original) The atomizer system of claim 1 further comprising a source of vibration to introduce disturbances within the melt material.

8. (Currently Amended) The atomizer system of claim 1 wherein the flow of atomization fluid is ~~non-continuous~~.

9. (Original) The atomizer system of claim 1 wherein the containment portion is made of a solid form of the melt material itself.

10. (Canceled)

11. (Original) The atomizer system of claim 1 wherein the atomizing fluid is a gas.

12. (Original) The atomizer system of claim 11 wherein the gas that is the atomizing fluid is inert.

13. (Original) The atomizer system of claim 11 wherein the gas that is the atomizing fluid is oxidizing.

14. (Original) The atomizer system of claim 11 wherein the gas that is the atomizing fluid is reducing.

15. (Original) The atomizer system of claim 1 wherein the atomizing fluid is a liquid.

16. (Original) The atomizer system of claim 15 wherein the liquid that is the atomizing fluid is inert.

17. (Original) The atomizer system of claim 15 wherein the liquid that is the atomizing fluid is oxidizing.

18. (Original) The atomizer system of claim 15 wherein the liquid that is the atomizing fluid is reducing.

19. (Original) The atomizer system of claim 1 wherein the atomizing fluid contains particulates therein.

20. (Original) The atomizer system of claim 1 wherein the thermodynamic conditions, i.e. temperature, pressure, and density, as well as velocity (axial and angular) of the atomizing fluid are user selectable.

21. (Original) The atomizer system of claim 1 further comprising a cooling system.

22. (Currently Amended) The atomizer system of claim 1 further comprising a liquefying system that ~~subjects liquefies the melt material to be melted to elevated acceleration prior to introducing the melt material to the containment portion liquefying.~~

23. (Canceled)

24. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies radiant heating to the melt material to be atomized.

25. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies induction heating to the melt material to be atomized.

26. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies electric arc heating to the melt material to be atomized.

27. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies lasers to the melt material to be atomized.

28. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies hot atomizing fluid heating to the melt material to be atomized.

29. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies chemical reaction heating to the melt material to be atomized.

30. (Withdrawn) The atomizer system of claim 22 wherein the liquefying system applies refractory containment heating to the melt material to be atomized.

31. (Original) The atomizer system of claim 22 wherein the liquefying system applies plasma arc heating to the melt material to be atomized.

32. (Currently Amended) A method of atomizing a material comprising the steps of:

a.) accelerating ~~the environment of~~ the material to be atomized ~~such that the gravitational forces experienced by the material are elevated relative to Earth's standard gravitational force;~~ and

b.) flowing an atomizing fluid across an exposed surface of the material while the material is experiencing an acceleration force higher than Earth's standard gravitational force; and

while the material is experiencing the acceleration force, facilitating the establishment of entraining liquid droplets of the material in the atomizing fluid flowing

across the exposed surface of the material such that the liquid droplets which aerosolize and create fine particulates.

33. (Currently Amended) The atomizer method of claim 32 further comprises the step of introducing relative motion between the containment portion and the ~~melt~~ material.

34. (Currently Amended) The atomizer method of claim 33 ~~32 wherein accelerating the material to be atomized further comprises the step of rotating the atomizer system on material about more than one axis of rotation.~~

35. (Currently Amended) The atomizer method of claim [[33]] 32 further comprises the step of spinning the containment portion while comprising introducing the liquid melt material to be atomized in liquid form into the containment portion while the acceleration forces are acting upon the containment portion it.

36. (Canceled)

37. (Canceled)

38. (Currently Amended) The atomizer method of claim 32 further comprises comprising the step of introducing a source of vibration to facilitate disturbances within vibrating the melt material while the material is experiencing the acceleration forces to facilitate disturbances within the material.

39. (Currently Amended) The atomizer method of claim 32 ~~further comprises the step of controlling a~~ wherein flowing comprises non-continuous flowing of the atomizing atomization fluid.

40. (Currently Amended) The atomizer method of claim 33 ~~32~~ ~~further comprises the step of containing the melt material with a containment portion~~ is made of a solid form of the melt material itself to be atomized.

41. (Canceled)

42. (Original) The atomizer method of claim 32 wherein the atomizing fluid is a gas.

43. (Original) The atomizer method of claim 42 wherein the gas that is the atomizing fluid is inert.

44. (Original) The atomizer method of claim 42 wherein the gas that is the atomizing fluid is oxidizing.

45. (Original) The atomizer method of claim 42 wherein the gas that is the atomizing fluid is reducing.

46. (Original) The atomizer method of claim 32 wherein the atomizing fluid is a liquid.

47. (Original) The atomizer method of claim 46 wherein the liquid that is the atomizing fluid is inert.

48. (Original) The atomizer method of claim 46 wherein the liquid that is the atomizing fluid is oxidizing.

49. (Original) The atomizer method of claim 46 wherein the liquid that is the atomizing fluid is reducing.

50. (Original) The atomizer method of claim 32 wherein the atomizing fluid contains particulates therein.

51. (Currently Amended) The atomizer method of claim 32 further comprising comprises the step of ~~the user~~ selecting the thermodynamic conditions, i.e. temperature, pressure, and density, as well as velocity (axial and angular) of the atomizing fluid.

52. (Canceled)

53. (Currently Amended) The atomizing method of claim 32 further comprising the step of ~~subjecting liquefying~~ the material ~~to be liquefied to the intended acceleration~~ prior to being liquefied accelerating the material.

54. (Currently Amended) The atomizing method of claim 53 wherein ~~the step of~~ liquefying the ~~melt~~ material is ~~non-continuous~~.

55. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying radiant heating to the ~~melt~~ material to be atomized.

56. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying induction heating to the ~~melt~~ material to be atomized.

57. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying electric arc heating to the ~~melt~~ material to be atomized.

58. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying lasers to the ~~melt~~ material to be atomized.

59. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying hot atomizing fluid heating to the ~~melt~~ material to be atomized.

60. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying chemical reaction heating to the ~~melt~~ material to be atomized.

61. (Withdrawn and Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying refractory containment heating to the ~~melt~~ material to be atomized.

62. (Currently Amended) The atomizing method of claim 32 ~~53~~ wherein the further comprising liquefying step applies the material by applying plasma arc heating to the ~~melt~~ material to be atomized.

63. (New) The atomizing system of claim 1 wherein, while the melt material is experiencing the acceleration forces, portions of the atomizing fluid become entrapped within the melt material such that the portions of the atomizing fluid within the melt material buoyantly travel to the exposed surface of the melt material and form at least some of the liquid droplets of the melt material.

64. (New) The atomizing system of claim 1 wherein the atomizing fluid that entrains the liquid droplets of the melt material flows in a direction substantially parallel to an axis of rotation of the containment portion.

65. (New) The atomizing system of claim 64 wherein the containment portion is a cylinder.

66. (New) The atomizing method of claim 32 further comprising entrapping portions of the atomizing fluid within the material such that, while the material is experiencing the acceleration forces, the portions of the atomizing fluid within the material buoyantly travel to the exposed surface of the material and form at least some of the liquid droplets.